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ABSTRACT

This booklet is designed to help British teachers introduce concepts of waste to secondary school students. The document focuses on various types of waste and pollution--air, land, water, and industrial--and suggests activities to help students understand and combat waste of natural and human resources. It is presented in 11 chapters. Six chapters deal with waste of specific resources, including water, land, forests, oil, metals, and glass. Two chapters provide general background information on waste and pollution in modern society and offer projections regarding the quality of life of future generations. One chapter examines pollution resulting from improper waste disposal. Another chapter discusses how technology can be used to develop natural power and energy. The final chapter lists resources used in preparing the publication. Each chapter includes a list of learning activities. Students are involved in surveying packaging practices of local supermarkets, visiting waste disposal works, interviewing community members regarding use of aerosol products, visiting reference libraries, analyzing sources of power, and recycling broken glass and aluminum cans. (DE)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

LOOK

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LOOK INTO WASTE

LOOK BOOKS are published by C.E.M. as part of its service to schools and to the youth service. Look Books are intended to help with enquiries into topics of importance for the world we live and grow in. They provide information and ideas as a basis from which young readers may begin their own search, to make up their own minds. Some indication of possible action is given.

LOOK INTO WASTE is written and compiled by DAVID EDWARDS, C.E.M.'s Secondary Adviser and Regional Secretary for North East England.
The opinions expressed in this book are the author's own and do not necessarily reflect the views of the Movement or its members.

APRIL 1978

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Bottom, Oxfam.

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HERE IS
THE
EARTH

The world and all that is in it
belong to the LORD;
the earth and all who live on it
are his.

Psalm 24, Old Testament.

The earth does not belong to man but man to earth...
Seattle, American Indian Chief of the Duwamish tribe
as he handed over his lands to the white man in 1855.

Earth has enough for every man's need but not enough
for every man's greed

Mahatma Ghandi

We behave as if we were the last generation to inhabit
the earth...

Rene Dubos in 1970

DON'T SPEND IT ALL AT ONCE!

SOME RESULTS OF WASTE

Waste affects every one of us, and bird and animal life and vegetation. Poisonous gases from factory chimneys wipe out plant life in the surrounding countryside. Birds and fish die from the oil and chemicals that we pour into our rivers, lakes and seas. Even worse, waste gases and metals can maim and kill people. *In 1953 in Japan a group of fishermen suffered permanent brain damage and 46 people died after eating shellfish which had been polluted by mercury wastes from nearby factories.*

In the whole world the rate at which industry is introducing polluting substances into the environment is increasing at 5% every year (or doubling over =4 years). *Approximately 500 new substances are added to the environment each year.*

WHY WASTE?

Man may be on the moon, but how on earth is he to live?

In this book we are focussing on WASTE and the photographs, cartoons and text all point to this. (Perhaps you ought to look up the word 'waste' in a dictionary straightaway and write down its meanings.)

We use this word a lot in our language : *Waste not, want not. Waste of time - waste of money - what a waste - waste of good food - waste of effort.*

The photograph shows human life being wasted - the two children are wasting away.

A well-known children's verse goes like this :

I must not leave upon my plate
the food I cannot eat
for many a little hungry one
would think it quite a treat
and wilful ways make woeful ones
and you might live to say,
I wish I had that food
that once I threw away.

Some people believe that money spent on nuclear bombs and arms is money thrown away - others that money spent on space research is also a waste when there are people on earth still dying of hunger and disease.

These big issues raise questions about living in today's world and the values we have for each other and in society.

Waste is a big issue, and we have choices to make about it.

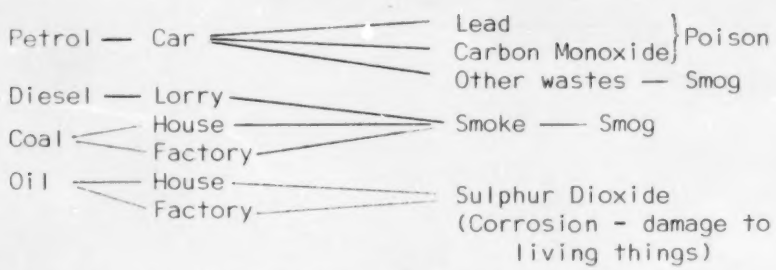
Air

We cannot live longer than four or five minutes without clean air (pure air can only be made under laboratory conditions).

Air has two main gases, nitrogen 78% and oxygen 21%. A car engine does not burn up its fuel completely - its exhaust gives out a steady stream of waste gases, the largest being carbon monoxide. Too much of this and we would die of oxygen starvation. In Tokyo children sometimes have to wear masks to keep out the thick, dirty, smoky fog called 'smog', and even with masks there is a half-hour limit for officers on traffic duty at rush hours.

Britain's unclean air

According to a medical journal 60% of Britain's air pollution is caused by cars' waste gases.



Can you think of a few possible solutions as car numbers increase every year? Write down at least four.

THE GREAT WASTE RACE

1. We live in a world which makes more and more things every day - advertising tells us we need more of this and that, more new things more often. 'The more you have, the happier you will be' shouts out from television. This may not be true for you but it is a fact that the more new things we have the more old things we have to throw away. The more things we make, the more we have to waste.

2. We live in a throw-away society. *'Waste not, want not'* seems to be a forgotten saying and means little to us and yet other people could benefit from our rubbish. A lot of so-called rubbish can be re-cycled and re-used. This includes such everyday items as paper, glass, certain metals and oil.

The answer to the question, 'Who are the wasters?' is, 'We all are' but remember - if it is to be a less wasteful world tomorrow much depends on you.

6

'INHERIT THE EARTH'

EARTH'S RESOURCES

There are two sorts of resources on the earth, renewable and non-renewable.

Renewables (things which grow) - anything based on plants or animals, e.g. trees are renewable resource as long as we do not use too many in a year.

Non-renewables - such things as oil, coal, peat, natural gas, and the things that can be made from them.

SUPPLIES WILL RUN OUT . . . . . THEN WHAT?

Ores (from which metals are made), oil and natural gas will run out during the next century if we continue to use them at an increasing rate. Coal will be used to make paints, plastics, fertilizers, pesticides, medicines, and many other things and little will be burnt as fuel. There could be more wood if we make space for trees and plant good yield varieties now, but 'plant a tree' week isn't exciting enough for many people even though your children and grandchildren may well ask why we did not do these things at the proper time.

It took 250 million years for the earth to make our oil - we use it at the rate of 600 million tons every year.

At the present mining output and rate of consumption, coal could run out in 2030 AD, oil by 2000 AD or soon after, and most metals by 2100 AD.

Metal	Years of supply left at the rate of use today	Years of supply left at an increasing rate of use.
IRON	393	68
TIN	18	13
ALUMINIUM	168	28
LEAD	11	10

Can you think why, ideally it is better to burn wood than coal or paraffin?

Why choose paper-bags rather than plastic ones?

Ask your mother why she chooses fibres like nylon, terylene or dacron rather than cotton, silk or wool for clothing the family. (Be prepared for her to say she cannot get 100% cotton goods very often, and that the price is too high.)

Can you start a list of everyday household items where there is a choice between renewable and non-renewable items?

Ah, you've been in for a swim!

You've almost crossed the Channel. Take a rest—tread garbage!

YOU NEVER MISS THE WATER TILL THE WELLS RUN DRY

All life began in the water and all living things contain a lot of water. We can live weeks without solid food but only about five days without liquid. To keep alive we need to drink about 2 litres of water daily. *The amount of water used in Britain is equivalent to 140 litres for each person every day.*

It is easy to waste water, it is done without thinking. In urban areas 40% of all the water used is flushed down the lavatory - that is 23 litres of expensively purified drinking-water down the drain. *In one year the average user of the flush lavatory contaminates 60,000 litres of drinking-water to put just 600 litres of body wastes into the water supplies from which fresh supplies have to be taken and re-purified.*

In 'dry' countries, where rainfall is very low, finding water and saving water is vital for life. To bore water-holes is expensive and many people do not have the right equipment so collecting rainwater, when it does rain, is sometimes the only way of storing water for agricultural and household use.

There has been water rationing in Britain, when car-washing and garden-watering were banned in 1975. For a time people saved water by not leaving the tap running while cleaning their teeth or washing their hands. Care could still prevent trouble with water supplies.

WATER UNFIT FOR USE?

A lot of our water is not clean enough for human needs. Manchester takes its water from the Lake District nearly 100 miles away yet has eight rivers flowing near or through the city. The rivers are dirty from waste being dumped into them by big industries and a large population.

Some of the rivers in the industrial north of England are still badly polluted, e.g. the Rivers Mersey, Tees, Wear and Tyne. Efforts are now being made to clean up these rivers. London's River Thames is being cleaned up although it runs through one of the most densely populated districts in the world.

100 years ago over 100,000 salmon were caught in the River Tyne each year. Now there are none at all.

Some power stations by the sides of rivers use the water from the river for cooling and the rivers heat up. If waste heat is put into rivers certain things happen - fish cannot reproduce, many die- water becomes smelly- most of the river life dies.

Human, household and industrial wastes can cause rivers to die, and as sewage, detergents, poisons, farming wastes and fertilizers are regularly discharged into their waters, they become unsafe and need expensive treatment.

Warning signs like 'No bathing, dangerous currents' could be outnumbered by 'No swimming, by order - polluted water'. Accidentally falling into one of these rivers and swallowing some of its contents could result not only in being soaked to the skin, but in being very ill afterwards.

The River Rhine in Germany is the dirtiest river in Europe and it is becoming dirtier as more waste continues to be emptied into it. As you know most rivers flow into the sea . . . !

WHAT ABOUT SEA-WATER?

Although man still fears the sea's power he knows more about its movements, the teeming life within it and how important it is to us as the major source of earth's oxygen. Its fish help to feed us, its seaweed is used in certain foods and household items, and as a very good fertilizer which helps to grow food.

As well as dumping used oil into the sea we pour in tons of chemicals and used metal wastes. This is wasteful and dangerous. Seabirds suffer and die, so do shellfish, other fish and much smaller creatures hardly visible to our eyes but vital as food for fish.

Some seaside towns the world over pump their sewage into the sea as this is cheaper than treating it. Untreated it can cause disease. In the early 1970s some Italian seaside resorts closed their beaches because of an outbreak. Cholera, a dangerous disease, has been traced to public waste being dumped into the sea.

There are deadlier dumpings - various poisonous gases in canisters, and nuclear waste.

The life of our seas is too precious to be misused. The sea is not boundless- it is not just one big sink or a dumping place into which all our unwanted rubbish can safely go.

Things to do

Visit a water-works and a sewage-works. Discover how water is purified. Find out how much your water costs. Find out how much water your family uses in 24 hours. In what ways is water wasted? How could we economize on water? What uses are essential?

Write to the Publicity Department of some seaside resorts and ask what they do with their sewage and whether their beaches are safe.

Write a science fiction story in which all life in the sea dies.

LAND AHOY!

A recent report called 'Urban Wasteland' looked at the mess, called 'dormant land', caused by old disused factories and other buildings, disused railway lines and sidings, i.e. land not in active use for any purpose.

Disused quarries, slurry lagoons, and great heaps of waste from pit workings together are called 'derelict land'. The coal industry makes the biggest heaps of waste, known as 'slag heaps', 'tips', 'spoil heaps' in different parts of the country. Apart from this colliery waste, there is also the waste from the coal consumed at the power stations.

Besides being dangerous places they are 'eye-sores' which need to be cleaned up, but they present a variety of problems such as - what varieties of grass grow best on what sort of waste heaps or tips? - how can trees be grown on tips? - how can heaps be shaped to look more like natural hills? - fill in pits or turn them into lakes? - what machinery does the best job, and who provides most of the money to do these important improvements?

LAND LOST, LAND REGAINED

We have the knowledge and skills to solve these 'social' problems. The eye-sores need treatment quickly as we badly need more land for growing crops, building houses, and for recreational areas - space too is needed for plants and animals to survive.

To reclaim unused land costs a great deal of money, nevertheless local councils, with help from central government, are attempting to do this.

Remember we spent about £1,000 million on Concorde and we spend about £50 million a year on slimming cures and £120 million a year on cosmetics. Private gardens and allotments take £150 million, and each kilometre of motorway costs over £1 million. Next time you see a big intersection on a motorway notice the enormous amounts of space around it and think of the land being wasted when the country is short of land for growing food.

In Britain today we have less than one acre of land per person. As its value increases we ought not to waste it.

Look around your own city, town or village and see how many areas of land you think could be put to better use.

TREES AND PAPER DARTS

Trees, even 'express trees' take a long time to grow - 35 years is nothing. Only 8% of land in Britain has trees on it where Finland has 70% and the Common Market countries as a whole nearly 30%.

On a 'per head' basis, in Britain every man, woman and child uses approximately 135 kg of paper and cardboard every year - and this is much less than in the U.S.A. and the E.E.C.

We have to import most of this at high prices - just think what could be saved if we re-used most of our waste paper.

There could be a world shortage of wood fibre within the next fifteen years or less. Nearly all the books you use, for reading and for writing, are printed on high-grade paper, not containing any waste material.

WASTE PAPER AND RECYCLING

Most of our needs for printing, duplicating, writing, typing, newspapers, magazines and book publishing, paper bags and packaging materials could be met by recycled paper.

We use 20 million paper bags daily in Britain - and this number is rising!

Our use of recycled paper is very small and the demand for it is not regular, so production is difficult and inefficient. Only recently we have begun to use some recycled paper produced in this country as toilet paper! For paper making in general the time is coming, though slowly, when waste paper could be the main material with only small amounts of new pulp. At the present rate of change it will be a long time and some experts in conservation prophesy a world shortage of pulp -and paper by 1980!

Without thinking we drop scraps of paper, large and small, after eating chocolate, sweets, nuts, crisps, etc. Besides making a mess and costing money to collect it, it becomes a habit with us, and that's worse. We need to think before we throw.

After unpacking paper wrapped goods we usually push the lot into the refuse bin - waxed paper, glossy coated and strung up paper, all together. Had some of it been sorted out, bundled and collected, it could have been re-pulped quickly, avoiding the council waste tips. Remember - nearly half the contents of the household bin is mixed paper and card.

If you decide to collect paper at school, it is usually quite easy to get together a few tons. Most waste paper merchants will pay over £5 per ton and will collect the waste paper by lorry.

A pile of newspapers 120 cms high saves 1 tree from being cut down.

WASTE PACKAGING

There are two sides to the problem of waste packaging : the conservation side - can we afford to use valuable materials and energy to make packages, and the pollution side - what to do with waste packages and cardboard?

In addition any packaging costs money and extra inessential packaging more money. You can see this at a glance from the box of chocolates and its wrappings.

Buy a box of chocolates for a Christmas present.

Each chocolate is wrapped.

Each wrapped chocolate has its slot in a plastic tray.

Each plastic tray of wrapped chocolates is covered with corrugated paper.

The covered plastic trays of wrapped chocolate are held in shiny paper.

The shiny paper round the covered plastic trays of wrapped chocolate is a lining to the card box.

The lined card box which holds the covered plastic trays of wrapped chocolate is sealed into a cellophane wrapper.

The cellophane wrapper round the lined card box which holds the covered plastic trays of wrapped chocolates is inside the decorated Christmas paper sleeve.

Some shops will offer to gift wrap (with ribbon) your box of chocolates.

Nearly all shops will put it in a paper bag.

Things to do

Do a supermarket checklist or a simple survey in your local shops on various products in small package form to see how much packaging is used and which are sold loose.

Remember that 1/5th of all the money spent on day-to-day living needs goes towards paying for the packaging.

As you can see from the photograph some schools have collected waste paper and sold it for recycling - you can make a good start with newspapers, comics and magazines.

Visit a waste disposal works or paper mill. If your Council dumps rubbish instead of reclaiming it, write to ask them why.

The photograph of the cardboard house shows us that not all waste is thrown away.

OIL, RUBBER, PLASTIC, AEROSOLS . . . . .

It looks as if you could be asked which is the odd one out or to make a word from the first 4 letters, as sometimes "Ask the Family" does on BBC 1.

Oil - Black gold

You will know of oil slicks floating on the sea water endangering plant, fish and bird life. Imagine a tanker losing some of its ¼ million tons of oil - gigantic oil slick. Add to this the risks from blow-outs at oil platforms in the sea throughout the world (and in the North Sea close to Britain). Two known results from accidents so far are dirty beaches and dead birds.

This is a hazard of progress - money is needed to pay workers and for research and equipment to deal with the spillage of oil from ships and oil platforms. It is part of the high price that we pay for black gold.

When the explorer Thor Heyerdahl sailed across the ocean in his open boat he reported serious oil pollution on 43 out of 57 days of a mid-ocean voyage. Amoco Cadiz spilt 220,000 tons of oil.

Things to do :

Find out as many ways as you can that are used to stop oil slicks from forming and from being carried by currents and tides to beaches and to birds' breeding grounds.

Write down at least 3 other waste items that float on water and which cause problems. List the possible damage done.

Black Tyres

Man has progressed a long way since inventing the wheel. We now ride in comfort on roads and land gently at airports, on rubber - rubber tyres on steel wheels. Tyres are not pure rubber, they also contain nylon and other synthetic materials and some have steel for extra strength, but however they are made most vehicle tyres finish up as great piles of waste. Worn tyres can be re-used safely on vehicles after a process called re-moulding. Some badly worn tyres have been re-used in children's play areas, or as big containers for garden plants and as man-made reefs on sea beds for shell-life and fish grounds.

To reduce the mounting piles of tyres needs a specially enclosed furnace where they can be melted down. The problem is that we have many more waste tyres than we know what to do with, but can we afford to go on wasting the materials from which the tyres are made?

Look, we must be near to some civilization!

The Plastic P's

These figures are beyond our imaginings - over 250,000 tons of plastic containers are used each year; 1,000 million plastic cups are thrown away each year. Most plastics do not rot.

Thor Heyerdahl not only found oil on the sea but also plastic containers littering its surface many miles from human habitation. You will have noticed plastic waste materials in some of our inland beauty spots and well-known coastline areas when you have had a day out or been on holiday. Without thinking most of us add to this waste daily.

The three P's in plastics and packaging are polythene, polystyrene, and PVC - a trip around a supermarket will provide the proof.

Aerosols Forever . . . . .

Of the 4 items which began this section this last one is the most difficult to re-use or re-cycle. Aerosol tins are a form of packaging in which the product is stored under pressure in a sealed container. Its content is forced out in a fine spray by a propellant when a valve is pressed. It sells because it is claimed that it is convenient in use but it is a high price to pay for convenience when it is difficult to re-cycle, impossible to re-use and can be dangerous both in use and when disposed of.

Remember that each tin costs 6p - 7p and an extra 3p - 4p at least for the propellant. Would you buy an aerosol container if you knew the price of the product was increased by at least 10p on average, and that you couldn't use all of the contents because of the design? You would probably say 'no' but because of clever advertising methods our use of aerosols has increased by 1700%, although American research has shown that the propellant damages the environment which protects.

Things to do :

Make a list of products now sold as aerosols and then ask people whom you know to use them and ask them why they do so. Make notes and compare them at school.

Say why you think manufacturers of aerosols are made to put warnings on their containers, like cigarette manufacturers have to on cigarette packets.

Using aerosols makes people spend more money and grow lazy. Do you agree? Give your reasons.

LOOK INTO WASTE

METALS

Metals, as you know, are used to make lots of everyday things, big and small. A car, for instance, requires several metals and other materials. A car's weight has in it about :

85% iron (steel), 3% zinc, 1% copper, 1% aluminium
½% lead, 9½% glass, rubber, plastics.

Lorries, buses, coaches, trains, ships, aeroplanes all need much more metal so we need to re-use metals over and over again otherwise we shall one day run out of natural ores.

There is a certain limit to the earth's supplies of coal, oil, natural gas and ores for metals.

As you know, using waste again is called re-cycling. This can be done with various metals, e.g. used car bodies can be turned into good quality scrap steel for melting down to re-use.

Please note that although the amount of lead in a car is less than the other metals, 40% of the world's output of lead is added to petrol to help to make petrol driven engines run more smoothly. In suffieient quantities it is a dangerous poison. Lead in the atmosphere is increasing. It was added to petrol nearly 40 years ago and since then it has been polluting the air. Currents carry the air many miles. It has been discovered that the amount of lead in Greenland's ice has increased by 300%.

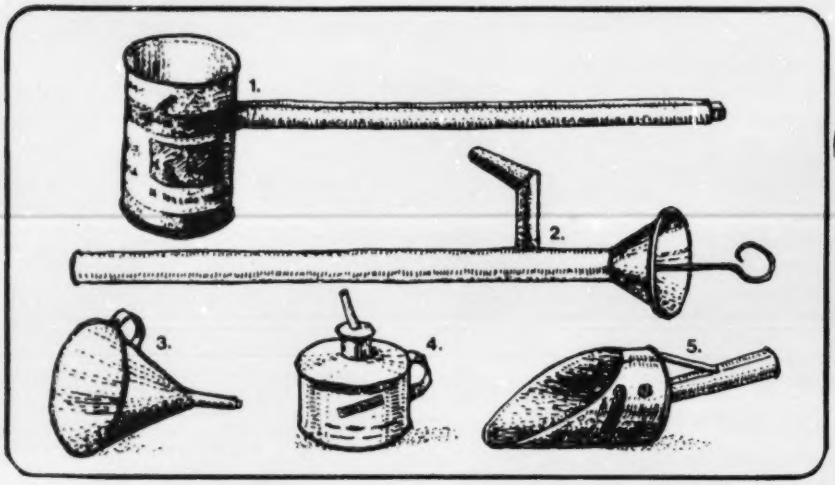
Throw it away, it's useless!

We use 7,500 million tins a year. If you were asked why you threw away at least 134 tins every year you would probably say, 'not I'. The truth is that on average in Britain every person throws away this number. Although 'tins' are mainly made of steel they usually have a thin coating of tin on the inside.

Question : What would go around the world 20 times when laid end to end? . . . . . or whose bulk would be as wide as the Post Office Tower in London but would be 3½ times its height?
Answer : empty tins.

Convenience foods use a great number - 93% of all the tin plate produced is used to make tins. The ring pull tin, much used today, costs 4p - 5p each and uses both tin plate an aluminium - a convenient but very expensive way of packaging.

As you can see from the items listed, the man in Tanzania, in East Africa, shaped the thrown away tins and made some usful tools.



1. A ladle made out of an old margarine tin.

2. A pump. As you pull the wire at the top a flap at the bottom opens and the liquid is drawn up. It might be used for pumping paraffin out of a large container.

3. A funnel.

4. A paraffin lamp.

5. A scoop.

The people in Norway use glass jars much more and these are mostly re-used. A refundable bottle works out a lot cheaper in every sense and does not waste as many natural materials and as much energy in manufacture, but more of this in the next section on glass.

A lot of aluminium waste could be collected, processed and used again. Think of all the aluminium foil thrown away after cooking, the milk bottle tops which finish up in the dustbin, and the aluminium tins too. There is a good price for clean waste aluminium. The photograph (taken at the Oxfam Wastesaver depot in Huddersfield) shows what can be done if a central depot will handle it. Large amounts of aluminium waste from all over the country is received here, and it is paid for. Processing firms who need it, buy it from Oxfam, so people are helped directly from the sales of aluminium waste.

All tins have both ends removed and are then squashed flat. Aluminium is not attracted by a magnet, so the test is to use a magnet and if the tin sticks to it it is not aluminium. A much better price is paid if the metals are sorted before being sold to a dealer: steel, chrome, iron, brass, copper, lead, etc.

Establishing a re-cycling project for metals, paper and glass is a contribution towards conserving the earth's natural resources.

GLASS

It takes six times as much energy to produce one throw-away tin as it does to produce and use one returnable bottle. Glass bottles and jars can easily be washed and used again or they can be melted down, yet *only 13% of glass containers are re-used and only 3% re-cycled.*

Many Happy Returns!

The good old milk bottle is the exception to the rule as it returns to the door up to 20 times before it is cracked or damaged. Glass containers pass on no flavours to their contents, unlike some cartons, and are not as wasteful in production as plastic sachets and cardboard cartons. In Britain alone 7,000 million glass bottles are made every year and about 700 million of them get left around the country as rubbish.

New Bottles for Old

A new recovery scheme known as the "Bottle Bank" began recently. The Glass Manufacturers Federation (GMF), together with local authorities, launched the "Bottle Bank" project. The scheme uses skips divided for clear, amber or green glass. A member company of GMF agrees on method of operation with the local authority, e.g. how many collection points and where to place them. The collected glass is sold to the glass-making firm for re-use. This means that the raw materials to make new glass - sand, limestone and soda ash - are not being used as much, and less energy is used in the process for old glass is being re-used. In addition, any profit the local authority makes can be passed on to the people, e.g. one area is paying for a party of disabled persons for a day at the seaside and buying colour television sets for its old people's homes. If the whole country was covered by the "Bottle Bank" scheme there would be less raw materials used, and some people in the community could be helped.

Here are some thing which you can do about glass waste :

1. Don't feed glass to your dustbin.
2. Ask your mother to use bottles and jars for storing home-made items.
3. Take medicine bottles back to the chemist or health centre.
4. If you start a glass project check first in the yellow pages of a telephone directory for a glass merchant who will provide transport. Find a local organisation which collects glass. Ask your school to make enquiries about a "Bottle Bank" scheme starting in your area.

Remember, if you do any collecting be very careful as broken glass can wound badly.

KISS ME QUICK
OXFAM
LIT

RICHES IN A DUSTBIN or A LOAD OF RUBBISH?

Well, where have we got to? The following paragraph sums it up :

> *Things are no longer made to last but to be used for a short time and then replaced. Although this may help to keep many people in employment and increase profits it makes us throw away things without thingking. This is very wasteful of natural resources and it causes squalor and problems of disposal. We live in a throw-away world.*

Disposal of domestic refuse costs £156 million per year, each household each year throwing away about one tone of refuse. Each person throws away 5 times his own weight in bottles and jars, tins, paper, rags, plastic cartons and yesterday's left-overs, every year.

The diagram below shows us the national average of the likely composition of house refuse in 1980 :

	Average weight per household per week (Kg)	Approx. % (by weight)
Dust and Cinder	1.8	12
Vegetable & Food Waste	2.4	17
Paper	6.3	43
Metal (Ferrous, i.e. containing (iron & non-ferrous)	1.3	9
Rag (including all materials)	0.4	3
Glassware (bottles, jars & broken glass)	1.3	9
Unclassified debris (including items that will not burn)	0.3	2
Plastics	0.7	5

Avoid making waste - recycling is only half the answer.

What can you do?
Always take a bag with you to shop.
If you have to buy preserved foods, buy them in bottles.
Avoid disposables - serviettes, tablecloths, nappies, etc.
Don't buy anything in an aerosol tin.
Avoid over-packaged goods (e.g. 'blister backs' of such things as nails and screws). Buy loose and get the quantity you want, which is usually cheaper anyway.
Think of a few more ideas and then take action.

SUN, WIND, AND WAVES

"Doing what comes naturally . . . . !"

What forms of natural power and energy are we not using fully yet?
Answer : sun, wind and waves.

How can these three sources be used much more in the future?
Answer : energy from the sun can provide us with heat for buildings, to warm water, to cook meals, to power cars- power from wind and water to work mills; electrical energy from water power - waterfalls, large dams, or waves from the sea.

When riding a bicycle or driving a car we must see what is immediately before us and take action but if we are really skillful we also observe what is further ahead of us and anticipate changing conditions. It is like this when we look at the energy needs of people in the future. The year 2000 AD is really only a very short distance away. The government now has to be farsighted enough to anticipate our energy needs in the 21st century when there will be more people in Britain and throughout the world.

When horses used to pull the plough and the cart we talked of horse-power to describe the power of a car's engine. Now we need to harness the power from the natural energy sources of sun, wind and waves to work for us.

Experiments using solar energy (i.e. energy from the sun) and the power from wind and waves are now being carried out but urgency is a keynote. "Tomorrow's World' on BBC 1 reminds us weekly that it is in our interest to think far ahead as well as for the present moment.

Time is not on our side, and the claims on money for more immediate tasks are many, but unless more research is done now and discoveries tested, then good chances for future generations to make full use of these unfailing sources will have been lost. We can see beyond the end of our noses, we know enough about the likely needs of people in tomorrow's world, and we have the knowledge and skills to plan well.

THE WAR ON WASTE is on for us now in the way we live but it means also using more fully the energies from sun, wind and waves and not wasting our chances to do so.

Things to do :

Give us as many examples as you can where the energy from sun, wind and waves is being used today.
Can you add to your list other possible uses of these sources of power? You might think of them under the headings home, school, work, leisure.
This could be an interesting project and your science teacher will be able to help you.
A visit to a reference library would be helpful in addition to information which you will get from your school library.

Save Waste, Save People

There are other outlets for things which we no longer need, e.g. magazines and books to hospitals, clothes to charities and Social Service departments - you needn't wait for a jumble sale!

Look into the things that are already done in your area. Here is a short check list :

saving milk bottle tops and tin foil (washed) for charities (e.g. Guide Dogs for the Blind).

re-using envelopes - you can buy stickers from stationers and printed ones, e.g. 'Re-use paper, Save trees' from the Conservation Society and others from 'Friends of the Earth'. They are used to cover the old address.

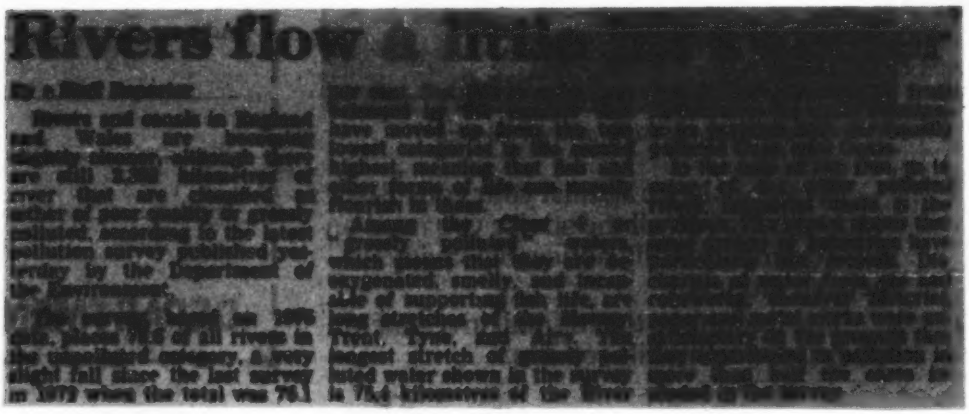
making old neglected houses properly usable.

Most times action is more effective and more fun if it is done with friends and people in your area. It often leads to group activities far beyond the early dreams of any one person.

Things to do :

Write to the national organisation "Friends of the Earth' who will provide you with helpful information and addresses if you tell them what you have in mind. Their papers, "Waste, What Can We Do About It?' and 'Packaging, A Suitable Case for Treatment' would be a start. Remember to enclose a stamped addressed envelope.

We hear a lot today about weight watchers. Let us be not waste (not waist) watchers but waste savers, not waste makers but waste workers.


Rivers flow

Things can be made to improve as this cutting shows.
(From The Guardian, 22nd March 1978)

Publications used in preparing this booklet:

The War on Pollution	M. Lyth	Priory Press
New Internationalist No 40 June 1976		
Pollution - Book 3	J. Burton	Blackie Ltd
Probe - Survival	H. Undy	C.E.M.

Other resources:

Appropriate Technology - a school and community kit C.S.V.
Wallchart - 'You and Your Environment' Pedigree Petfood
Poster - 'Wildlife in Danger' World Wildlife Fund
The Conservation Trust
The Civic Trust.

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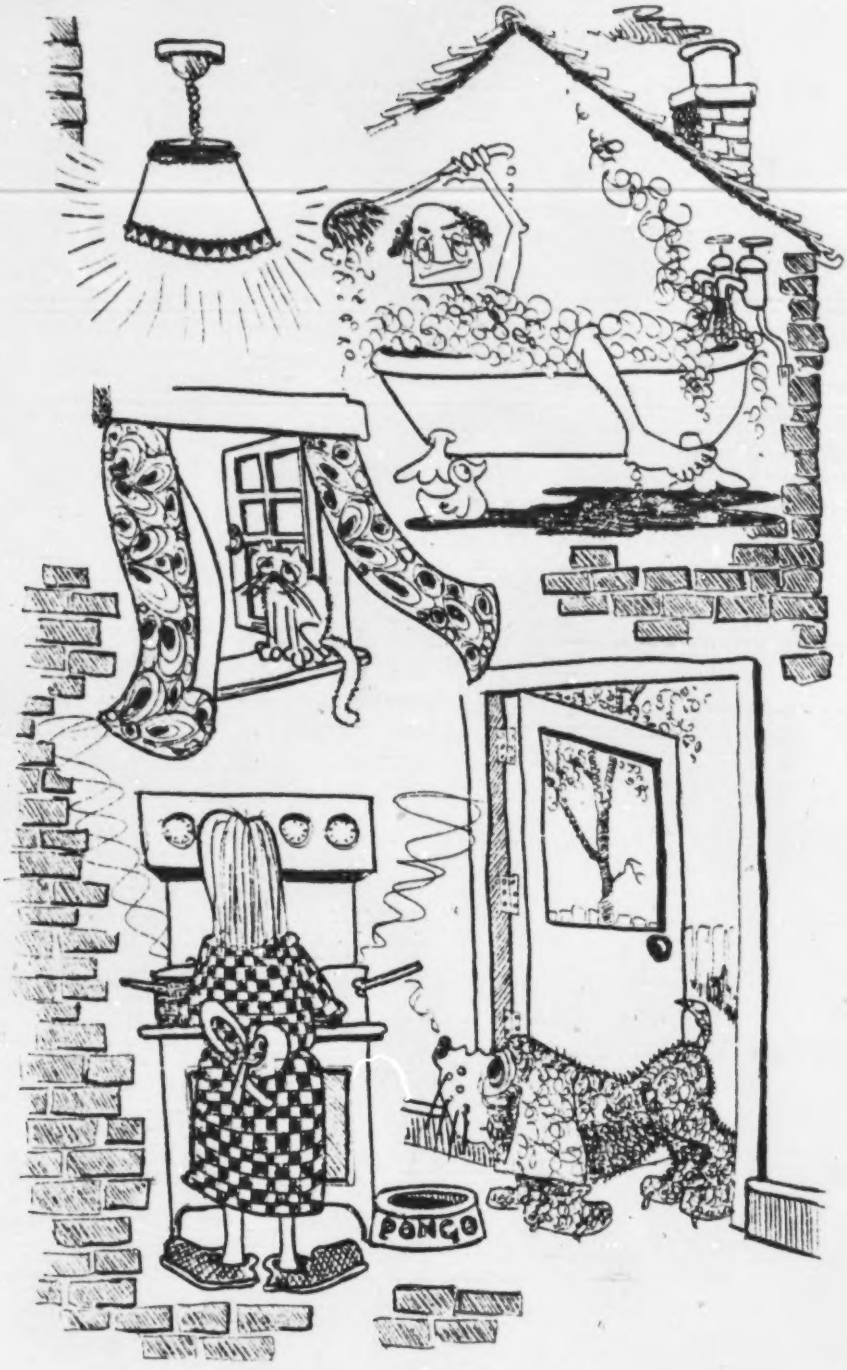
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